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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,283	08/20/2003	Benedict Aeneas Massara	871-011441-US / 30020469U	5795

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Joseph Gamberdell, Jr.
Perman & Green LLP
Suite 200
425 Post Road
Fairfield, CT 06824-6294

EXAMINER	
VAN ROY, TOD THOMAS	

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/644,283	MASSARA ET AL.	
	Examiner	Art Unit	
	Tod T. Van Roy	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 08/20/2003 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 08/20/2003,05/17/2004
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig.2 #'s 7, 6.5, 5.5, 5, and 4.5. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, and 4-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Brosson et al. (US 4920542).

With respect to claim 1, Brosson discloses a distributed feedback laser (DFB) comprising: a laser waveguide (fig.2 #C2), a DFB grating structure optically coupled to the waveguide (fig.2 #R) for establishing the wavelength of optical radiation in the waveguide; a current conduction region (fig.2 #C4) for guiding an applied electrical current to pump the laser waveguide; a current constriction region (fig.2 trenches, and area directly below, between regions S1-S3), said DFB structure extending in said constriction region (fig.2, DFB directly below S3-S2 trench, so would be found inside of the constriction region) and through said current conduction region (fig.2 #C2), wherein said current conduction and constriction regions are arranged to that an electrical current applied to the current conduction region pumps the laser waveguide (fig.2 current applied to E3 would pump waveguide C2), which varies the effective refractive index of the waveguide in order to stabilize the optical radiation for single mode operation of the laser (col.3 lines 32-48).

With respect to claim 2, Brosson discloses the DFB laser as outlined in the rejection to claim 1, and further discloses the DFB structure is based on a periodic array

of partially reflective features (fig.2 #R, col.2 lines 38-48, where the periodic index variation is well known to be reflective).

With respect to claim 4, Brosson discloses the DFB laser as outlined in the rejection to claim 1, and further discloses the current conduction region to be formed from one or more semiconductor layers (fig.2 #C4, col.4 lines 37-40) deposited above the laser waveguide (fig.2 C4 above C2), at least one of said deposited layers not extending over the current constriction area (fig.2 #C4).

With respect to claim 5, Brosson discloses the DFB laser as outlined in the rejection to claim 1, and further discloses the DFB laser to include an electrical contact (fig.2 #E3) for applying said electrical current in which said contact extends over the current conduction region, but not the current constriction region (fig.2 E3 is over C4 but not over or directly below the isolation trenches).

With respect to claim 6, Brosson discloses the DFB laser as outlined in the rejection to claim 1, and further discloses that one current restriction region (fig.2 left trench) lies between two adjacent current conduction regions (fig.2 C4 under E1 and E3).

With respect to claim 7, Brosson discloses the DFB laser as outlined in the rejection to claim 1, and further discloses that both of said current conduction regions have an electrical contact (fig.2 areas S1 and S3 have electrodes E1 and E3).

With respect to claim 8, Brosson discloses the DFB laser as outlined in the rejection to claim 1, and further discloses that two of the electrical contacts are in direct electrical connection (fig.2 E1-E3 directly connected through electrical control #6).

Claim 9 is rejected for the same reasons as claim 1. The claim details only the forming of the device of claim 1; the layers will necessarily be formed in any fabrication of the device.

With respect to claim 10, Brosson discloses the DFB laser as outlined in the rejection to claim 1, and further discloses a method of operating the device by applying through one or more current regions (fig.2 #C4) an electrical current to pump the laser waveguide (fig.2 #C2) unevenly with respect to the extent of the DFB structure (namely near the right hand trench in fig.2) and thus vary the refractive index of the waveguide in order to stabilize the optical radiation for single mode operation (col.3 lines 32-48).

With respect to claim 11, Brosson discloses the DFB laser as outlined in the rejection to claim 1, and further discloses that one current restriction region (fig.2 left trench) lies between two adjacent current conduction regions (fig.2 C4 under E1 and E3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brosson in view of Uomi et al. (US 4873691).

With respect to claim 3, Brosson discloses the DFB laser as outlined in the rejection to claim 1, but does not teach the use of ion implantation in the current constriction region. Uomi teaches a DFB laser in which ion implantation is used to control the flow of current (fig.4 #103, col.11 lines 2-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the DFB laser of Brosson with the ion implantation of Uomi in order to effectively isolate the various current/constriction regions inside of the device (Uomi, col.11 lines 2-10).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAMES MENEFEE
for
Mason Harvey

TVR